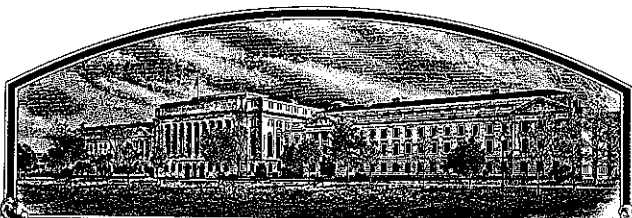


No.

9700150



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME;

South Dakota Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE IDENTIFIED BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF SEEDS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Oxen'

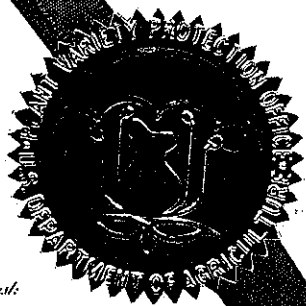
In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirtieth day of June in the year of our Lord one thousand nine hundred and ninety-nine.

Attest:

*ASA Allen*

Acting Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Don Dickinson*  
Secretary of Agriculture

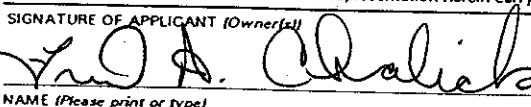


U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**  
(Instructions and information collection burden statement on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate)		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
South Dakota Agricultural Experiment Station		SD 0010	Oxen
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)		5. TELEPHONE (include area code)	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER 9700150 DATE 02-28-97 FILING AND EXAMINATION FEE 2450.00 DATE 2-28-97 CERTIFICATION FEE 300.00 DATE 5/3/99
South Dakota State University Ag Hall 129 Brookings, SD 57007		605-688-4149	
6. FAX (include area code)			
605-688-6065			
7. GENUS AND SPECIES NAME	8. FAMILY NAME (Botanical)		
Triticum aestivum L.	Graminea		
9. CROP KIND NAME (Common name)			
Hard Red Spring Wheat			
10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name)			
Agricultural Experiment Station			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	
N/A		N/A	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS			
Dr. Fred A. Cholick, Director South Dakota Agric. Exp. Sta. Ag Hall 129 Box 2207 SDSU Brookings, SD 57007-2141		Dr. Jackie Rudd, Spring Wheat Breeder Plant Science Department NPB 244D, Box 2140-C SDSU Brookings, SD 57007	
14. TELEPHONE (include area code)		15. FAX (include area code)	
605-688-4769		605-688-4452	
16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)			
<input checked="" type="checkbox"/> a. Exhibit A. Origin and Breeding History of the Variety <input checked="" type="checkbox"/> b. Exhibit B. Statement of Distinctness <input checked="" type="checkbox"/> c. Exhibit C. Objective Description of the Variety <input checked="" type="checkbox"/> d. Exhibit D. Additional Description of the Variety <input checked="" type="checkbox"/> e. Exhibit E. Statement of the Basis of the Applicant's Ownership <input checked="" type="checkbox"/> f. Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository) <input checked="" type="checkbox"/> g. Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)			
17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section B3(a) of the Plant Variety Protection Act)			
<input checked="" type="checkbox"/> YES (If "yes," answer items 18 and 19 below) <input type="checkbox"/> NO (If "no," go to item 20)			
18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?		19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		<input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED	
20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?			
<input checked="" type="checkbox"/> YES (If "yes," give names of countries and dates) <input type="checkbox"/> NO			
U.S.A., March 1, 1996			
21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.			
The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.			
Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF APPLICANT (Owner(s))		SIGNATURE OF APPLICANT (Owner(s))	
			
NAME (Please print or type)		NAME (Please print or type)	
Dr. Fred A. Cholick			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Director, SDAES	2-27-97		

## INSTRUCTIONS

**GENERAL:** To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A, B, C, E; (3) at least 2,500 viable untreated seeds, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in a public repository prior to issuance of a certificate; (4) check drawn on a U.S. bank for \$2,450 (\$300 filing fee and \$2,150 examination fee), payable to "Treasurer of the United States" (*See Section 97.175 of the Regulations and Rules of Practice.*) Partial applications will be held in the PVPO for not more than 30 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Blvd., Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self-explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$300 for issuance of the Certificate.

97 FEB 28 AM 107

Plant Variety Protection Office  
Telephone: (301) 504-5518

### ITEM

- 16a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
- (2) the details of subsequent stages of selection and multiplication;
- (3) evidence of uniformity and stability; and
- (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified.
- 16b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
- (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences;
- (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 16c. Exhibit C forms are available from the PVPO for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 16d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 16e. Section 52(4) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. The applicant may be the actual breeder, the employee of the breeder, the owner through purchase or inheritance, etc.
17. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant may NOT reverse this affirmative decision after the variety has been sold and so labelled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (*See P.L. 103-349 for additional information.*)
20. See Sections 41, 42, and 43 of the Act and Section 97.175 of the regulations for eligibility requirements.

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment is specified in Section 97.175 of the regulations. (*See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of Regulations and Rules of Practice.*)

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705.  
Telephone: (301) 504-8089.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Washington, DC 20260; and to the Office of Management and Budget, Paperwork Reduction Project (OMB No. 0581-0066), Washington, DC 20503.

EXHIBIT A.  
Oxen (SD0010)  
Origin and Breeding History of the Variety

The breeding line that became Oxen was part of a germplasm donation from Pioneer Hi-bred International (Pioneer) to South Dakota Agricultural Experiment Station (SDAES), North Dakota Research Foundation, and Minnesota Agricultural Experiment Station made in 1990. This was a gift and all rights to the development of the germplasm was given to the respective institutions. The experimental designation given to the line by Pioneer was SBF0089. SBF0089 was given the experimental designation of SD0010 in 1992. SBF0089 was selected from the cross SBY336A/SBZ004A. The pedigree of SBY336A is Waldron//Lundi/Justin/3/Arg5/4/Pioneer Line W6744. The pedigree of Arg5 is ND81/Massaux#5 /3/Sn64/Tzpp//Yq50 /4/Piamontes /5/Soren/Nai60 and the pedigree of W6744 is 961-22B/Taintor 11/Sn64. The pedigree of SBZ004A is Pioneer Variety 2369/Len. The cross SBY336 was made by Pioneer in 1979. The cross SBZ004 was made by Pioneer in 1980. The cross SBF0089 was made by Pioneer in 1985. Generation advance was conducted using a Pedigree breeding method at the Pioneer breeding nursery at Glyndon, Minnesota. Visual selection for agronomics and resistance to prevalent pathogens were made at Glyndon.

Oxen (SD0010 or SBF0089) has been in advanced yield trials of the South Dakota Spring Breeding Program since 1992, South Dakota Crop Performance Tests since 1993, the Uniform Regional Spring Wheat Nursery since 1993, and the Spring Wheat Quality Advisory Council trials in 1994 and 1995. Seed increase was conducted by the South Dakota Spring Wheat Breeding Program from 1991 through 1993. Breeders' seed was produced in 1994 and Foundation seed was produced in 1995.

Approximately 0.5% tall variants (10 cm taller) were rogued from the seed block used to produce the Breeders' seed. Approximately 0.2% tall variants were identified in the Breeders seed. These were not rogued.

Oxen has been uniform and stable for all morphological characters during the past four generations of selfing and increase. A tall variant (10 cm taller) was identified in the breeders seed at a frequency of approximately 0.2%. Up to 0.5% variant plants may be encountered in subsequent generations.

EXHIBIT B.  
Oxen (SD0010)  
Statement of Distinctness

Oxen is most similar to the hard red spring wheat cultivars '2375' and '2398', but differs in the following characteristics:

- Photograph 1 shows that Oxen, 2398, and 2375 have distinctly different gliadin storage protein banding patterns.

AAA

25 Mar 1999

per MAH

per phone call of

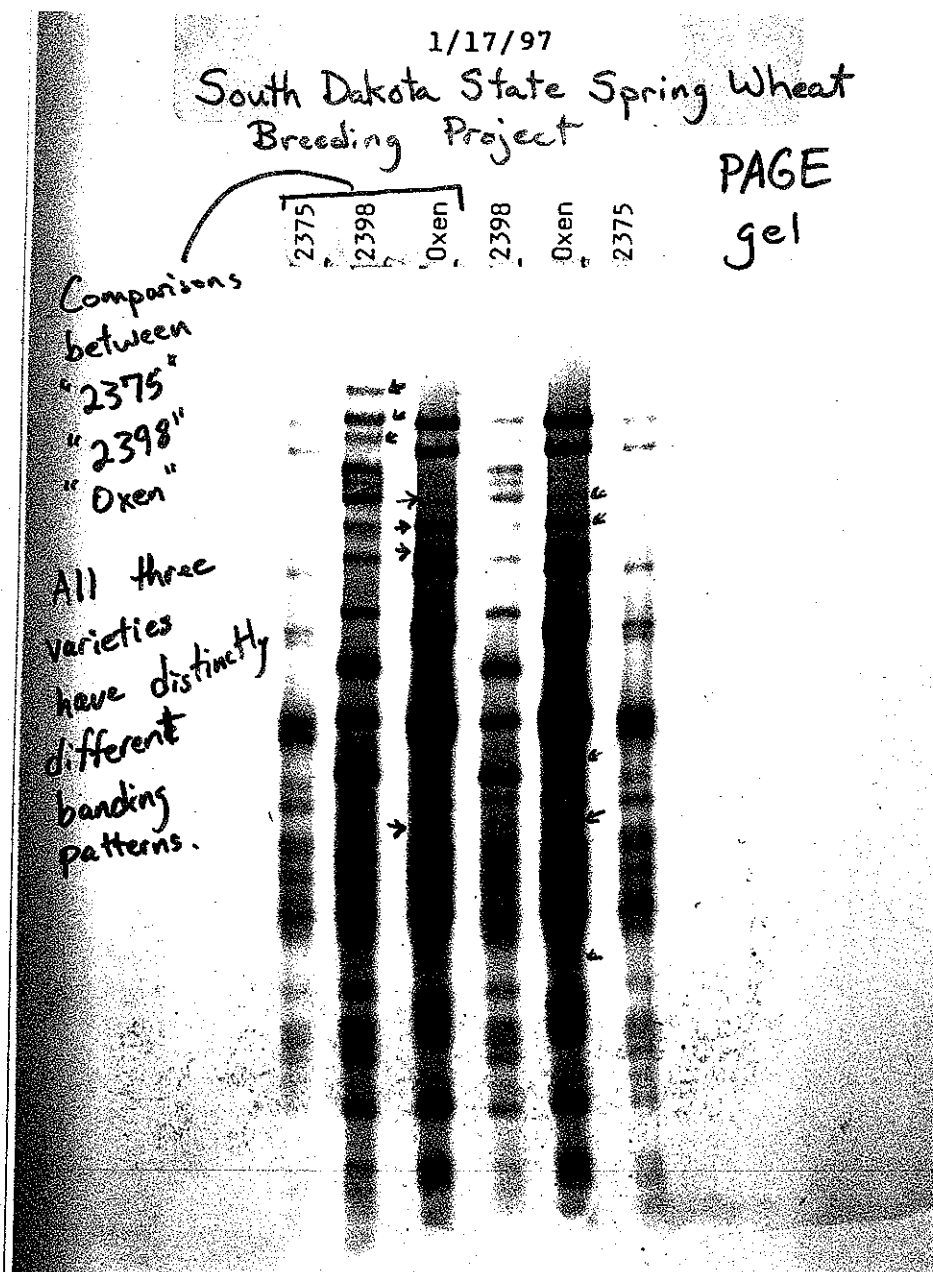
24 Mar 1999

SD 0010

RECEIVED

Photograph 1. Acid Polyacrylamide Gel Electrophoresis (PAGE) of hard red spring wheat cultivars Oxen, 2375, and 2398. PAGE was conducted by Dr. Brent Turnipseed, Seed Testing Lab, South Dakota State University.

Gliadins AAA 25 Mar 1999 per Matt per phone call of 24 Mar 1999



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISION  
BELTSVILLE, MARYLAND 20705

9700150 EXHIBIT C  
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY  
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S) South Dakota Agricultural Experiment Station	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) South Dakota State University Ag Hall 129 Brookings SD 57007	PVPO NUMBER
	VARIETY NAME Oxen
	TEMPORARY OR EXPERIMENTAL DESIGNATION SD0010

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g.    or   ) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: \_\_\_\_\_  
Please answer all questions for your variety; lack of response may delay progress of your application.

## 1. KIND:

 1

1=Common

2=Durum

3=Club

4=Other (SPECIFY) \_\_\_\_\_

## 2. VERNALIZATION:

 1

1=Spring

2=Winter

3=Other (SPECIFY) \_\_\_\_\_

## 3. COLEOPTILE ANTHOCYANIN:

 1

1=Absent

2=Present

## 4. JUVENILE PLANT GROWTH:

 2

1=Prostrate

2=Semi-erect

3=Erect

## 5. PLANT COLOR (boot stage):

 1

1 = Yellow-Green

2 = Green

3 = Blue-Green

## 6. FLAG LEAF (boot stage):

 2

1 = Erect

2 = Recurved

 2

1 = Not Twisted

2 = Twisted

## 7. EAR EMERGENCE:

 0 3

Number of Days Earlier Than

Chris

 0 2

Number of Days Later Than

Butte 86

## 8. ANTHOR COLOR:

 1

1 = YELLOW

2 = PURPLE

## 9. PLANT HEIGHT (from soil to top of head, excluding awns):

cm Taller Than

 1 8

cm Shorter Than

Chris

## 10. STEM:

Exhibit C (Wheat) Page

## A. ANTHOCYANIN

☐ 1 = Absent      2 = Present

## B. WAXY BLOOM

☐ 2 1 = Absent      2 = Present

## C. HAIRINESS (last internode of rachis)

☐ 2 1 = Absent      2 = Present
D. INTERNODE (SPECIFY NUMBER) 4 (including panduncle)
☐ 1 1 = Hollow      2 = Semi-solid      3 = Solid

## E. PEDUNCLE

☐ 2 1 = Absent      2 = Present

☐ 33 cm Length

## 11. HEAD (at Maturity):

## A. DENSITY

☐ 3 1 = Lax      2 = Middense      3 = Dense

## B. SHAPE

☐ 1 1 = Tapering      2 = Strap      3 = Clavate      4 = Other (SPECIFY) \_\_\_\_\_

## C. CURVATURE

☐ 2 1 = Erect      2 = Inclined      3 = Recurved

## D. AWNEDNESS

☐ 4 1 = Awnless      2 = Apically Awnletted      3 = Awnletted      4 = Awned

## 12. GLUMES (at Maturity):

## A. COLOR

☐ 1 1 = White      2 = Tan      3 = Other (SPECIFY) \_\_\_\_\_

## B. SHOULDER

☐ 2 1 = Wanting      2 = Oblique      3 = Rounded      4 = Square      5 = Elevated      6 = Apiculate

## C. BEAK

☐ 3 1 = Obtuse      2 = Acute      3 = Acuminate (3-7 mm in length)

## D. LENGTH

☐ 2 1 = Short (ca. 7mm)      2 = Medium (ca. 8mm)      3 = Long (ca. 9mm)

## E. WIDTH

☐ 2 1 = Narrow (ca. 3mm)      2 = Medium (ca. 3.5mm)      3 = Wide (ca. 4mm)

## 13. SEED:

## A. SHAPE

☐ 1 1 = Ovate      2 = Oval      3 = Elliptical

## B. CHEEK

☐ 2 1 = Rounded      2 = Angular

## C. BRUSH

☐ 2 1 = Short      2 = Medium      3 = Long

☐ 1 1 = Not Collared      2 = Collared

## D. CREASE

☐ 2 1 = Width 60% or less of Kernel  
2 = Width 80% or less of Kernel  
3 = Width Nearly as Wide as Kernel

☐ 2 1 = Depth 20% or less of Kernel  
2 = Depth 35% or less of Kernel  
3 = Depth 50% or less of Kernel



## 13. SEED: (continued)

## E. COLOR

☐ 3

1 = White

2 = Amber

3 = Red

4 = Other (SPECIFY) \_\_\_\_\_

## F. TEXTURE

☐ 1

1 = Hard

2 = Soft

## G. PHENOL REACTION (see instructions):

☐

1 = Ivory

2 = Fawn

3 = Light Brown

4 = Dark Brown

5 = Black

## 14. DISEASE:

(0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

Stem Rust (*Puccinia graminis* f. sp. *tritici*)☐ 2

field reaction

Stripe Rust (*Puccinia striiformis*)☐ 0Tan Spot (*Pyrenophora tritici-repentis*)☐ 1Halo Spot (*Selenophoma donacis*)☐ 0

Septoria nodorum (Glume Blotch)

☐ 0

Septoria avenae (Speckled Leaf Disease)

☐ 0

Septoria tritici (Speckled Leaf Blotch)

☐ 0Scab (*Fusarium* spp.)☐ 3

"Black Point" (Kernel Smudge)

☐ 0

Barley Yellow Dwarf Virus (BYDV)

☐ 0

Soilborne Mosaic Virus (SBMV)

☐ 0

Wheat Yellow (Spindle Streak) Mosaic Virus

☐ 0

Wheat Streak Mosaic Virus (WSMV)

☐

Other (SPECIFY) \_\_\_\_\_

☐

Other (SPECIFY) \_\_\_\_\_

☐

Other (SPECIFY) \_\_\_\_\_

☐Leaf Rust (*Puccinia recondita* f. sp. *tritici*)☐ 2

field reaction

Loose Smut (*Ustilago tritici*)☐ 0Flag Smut (*Urocystis agropyri*)☐ 0Common Bunt (*Tilletia tritici* or *T. laevis*)☐ 0Dwarf Bunt (*Tilletia controversa*)☐ 0Karnal Bunt (*Tilletia indica*)☐ 0Powdery Mildew (*Erysiphe graminis* f. sp. *tritici*)☐ 0

"Snow Molds"

☐ 0Common Root Rot (*Fusarium*, *Cochliobolus* and *Bipolaris* spp.)☐ 0Rhizoctonia Root Rot (*Rhizoctonia solani*)☐ 0Black Chaff (*Xanthomonas campestris* pv. *translucens*)☐ 0Bacterial Leaf Blight (*Pseudomonas syringae* pv. *syringae*)☐ 0

Other (SPECIFY) \_\_\_\_\_

☐

Other (SPECIFY) \_\_\_\_\_

☐

Other (SPECIFY) \_\_\_\_\_

☐

Other (SPECIFY) \_\_\_\_\_

☐

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

Exhibit C (Wheat) Page

PLEASE SPECIFY BIOTYPE (where needed)

Hessian Fly (*Mayetiola destructor*)

☐ 0 \_\_\_\_\_

Other (SPECIFY) \_\_\_\_\_

☐ \_\_\_\_\_

Stem Sawfly (*Cephus* spp.)

☐ 0 \_\_\_\_\_

Other (SPECIFY) \_\_\_\_\_

☐ \_\_\_\_\_

Cereal Leaf Beetle (*Oulema melanopus*)

☐ 0 \_\_\_\_\_

Other (SPECIFY) \_\_\_\_\_

☐ \_\_\_\_\_

Russian Aphid (*Diuraphis noxia*)

☐ 0 \_\_\_\_\_

Other (SPECIFY) \_\_\_\_\_

☐ \_\_\_\_\_

Greenbug (*Schizaphis graminum*)

☐ 0 \_\_\_\_\_

Other (SPECIFY) \_\_\_\_\_

☐ \_\_\_\_\_

Aphids

☐ 0 \_\_\_\_\_

Other (SPECIFY) \_\_\_\_\_

☐ \_\_\_\_\_

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

EXHIBIT D.  
Oxen (SD0010)  
Additional Description of the Variety

The following additional descriptive information is presented:

- Release notice of Oxen
- Table 1. South Dakota performance data.
- Table 2. Uniform Regional Hard Red Spring Wheat Nursery performance data.
- Table 3. 1995 Hard Spring Wheat Technical Committee data.



# South Dakota State University

9700150

College of Agriculture and  
Biological Sciences

Agricultural Experiment Station

Office of the Director

Box 2207, Ag Hall 129

SDSU

Brookings, SD 57007-0291

Phone 605-688-4149

FAX 605-688-6065

DATE: February 26, 1996

TO: Agricultural Experiment Station Directors  
North Central Region and Great Plains

FROM: Fred A. Cholick, Director *Fred A. Cholick*  
Agricultural Experiment Station

SUBJECT: Release of Cultivars

The South Dakota Agricultural Experiment Station announces the release of the following cultivars:

- 1) SD501 Foxtail Dalea - Proposed name 'Sundance'.
- 2) SD0010 Hard Red Spring Wheat - Proposed name 'Oxen'; PVP recommended.

The release date is March 1, 1996.

The South Dakota Agricultural Experiment Station also announces the following increases with intent to release:

- SD302 Canada Milk-vetch (intended for release in 1998)
- SD40 Canada Tickclover (intended for release in 1998)
- SD92-1357M Soybean (intended for release in 1997)
- SD92-1233M Soybean (intended for release in 1997)
- CI3353 Flax (intended for release in 1998)
- SD3156 Hard Red Spring Wheat (intended for release in 1997)
- SD92125 Oat (intended for release in 1998)

Enclosed are descriptions of the new releases. Complete yield and agronomic data are available on request from the Plant Science Department.

Seed is available through the Foundation Seed Stocks Division, Department of Plant Science, South Dakota State University, Brookings, SD 57007 (605-688-5418).

ph

Enclosures

cc: Cultivar Release/Variety Recommendation Committee  
Plant Breeders

*Creating Opportunities for a Lifetime*

A land-grant university serving South Dakota through Teaching - Research - Extension

### Release of SD0010 Hard Red Spring Wheat

SD0010 hard red spring wheat is being released under the proposed name of 'Oxen'. Originating from Pioneer Hi-bred International, the name Oxen was chosen to symbolize the value of public and private industry working together as a 'team'. The Pioneer designation of SD0010 is SBF0089 from the cross SBY336A/SBZ004A. The pedigree of SBY336A is Waldron//Lundi/Justin/3/Arg 5/4/Pioneer line W6744 and the pedigree of SBZ004A is Pioneer Variety 2369/Len. It is anticipated that Oxen will be submitted for cultivar protection under the Plant Variety Protection Act, and Title V of the Federal Seed Act.

Oxen is an awned, early maturing, semi-dwarf hard red spring wheat. In relative performance to '2375', SD0010 is higher yielding, similar maturity, slightly shorter, better in straw strength, and less prone to shattering. Bushel weight is less than 2375 but greater than 'Prospect'. Oxen appears to be widely adapted and has performed well in all areas tested in South Dakota, Minnesota, and North Dakota. Oxen is resistant and moderately resistant to the prevalent races of leaf rust and stem rust, respectively. Based on performance data, the Fusarium Head Blight resistance of Oxen is similar to 'Butte 86' and slightly less than 2375.

SD0010 is a strong mixing wheat with medium protein content. Protein content is similar to 2375 and Butte 86. The milling and bread-making qualities of Oxen are equal to 'Grandin' (1994-1995, Wheat Quality Council, Hard Spring Wheat Technical Committee).

Table 1. Yield trial data from South Dakota State University Spring Wheat Breeding.

**SDSU Spring Wheat Breeding Trials**  
**1993-1995 Grain Yield (bu/a)**

	Brookings (3)	Redfield (1)	Watertown (3)	Brentford (2)	Highmore (1)	Selby (3)	Ralph (3)	Brookings Late (1)	Day Co. (3)	Groton (2)	Average (23)
SD0010	41.2	26.0	43.6	38.1	37.3	51.2	43.1	41.8	49.6	57.5	44.2
SD3151	42.7	20.6	42.5	33.6	38.6	44.5	36.2	35.4	49.6	54.2	41.3
SD3156	40.1	24.5	41.2	32.6	31.4	46.9	47.0	40.9	52.9	58.5	43.2
Russ	42.4	22.0	42.8	35.3	41.4	47.8	42.6	41.4	50.2	60.1	43.7
Butte 86	40.5	19.0	37.8	32.4	39.6	44.7	40.0	35.3	48.8	55.4	40.9
2375	42.4	27.4	38.9	33.8	37.0	47.2	42.3	35.7	48.3	44.9	41.0
Prospect	36.3	16.0	32.4	29.3	33.2	46.8	42.5	37.7	44.0	50.2	38.1
Sharp	41.8	24.2	36.8	34.4	35.4	42.7	36.8	37.1	46.2	52.0	40.3

	1993 (8)	1994 (9)	1995 (6)	93-95 (23)	TW (23)	Prot (9)	Head (17)	Ht (19)
						-----1993-1995-----		
SD0010	39.8	41.6	53.9	44.2	57.9	14.2	+1	35
SD3151	38.6	38.4	49.3	41.3	58.3	14.8	-1	36
SD3156	39.6	39.6	53.3	43.2	57.7	13.9	-1	37
Russ	39.1	41.7	53.0	43.7	57.6	14.1	+2	39
Butte 86	37.9	38.3	48.6	40.9	57.7	14.3	0	39
2375	40.0	37.3	47.7	41.0	58.8	13.9	+2	36
Prospect	35.0	36.7	44.5	38.1	56.4	13.4	+3	37
Sharp	36.5	39.6	46.4	40.3	58.5	14.0	0	40

9700150

Table 2. Yield trial data from the Uniform Regional Hard Red Spring Wheat Nursery.

1993-1995: North Dakota, South Dakota, Minnesota

	1993 (10)	1994 (12)	1995 (11)	93-94 (22)	94-95 (23)
-----Grain Yield (bu/acre)-----					
SD0010	39.5	52.3		46.5	
SD3151		46.5	42.7		44.6
SD3156		49.0	46.7		47.9
Russ	41.7				
Stoa	36.3	46.3	42.3	41.8	44.4
Butte 86	37.6	46.1	42.3	42.2	44.4

Characteristics (1994)

	TW lb/bu (12)	Heading days (10)	Height (cm) (12)	Prot % (12)	Stem Rust (1)	Leaf Rust (1)
SD0010	58.9	+1	77	14.4	30S	0
SD3151	59.5	0	81	15.5	20MR	5MS-S
SD3156	60.2	-1	82	14.5	50MRMS	0
Stoa	57.4	+4	93	15.0	5RMR	5S
Butte 86	59.5	0	85	14.8	10MR	5S

Leaf rust and stem rust are from an inoculated nursery in St. Paul.

Table 3. 1995 Hard Spring Wheat Technical Committee.

Variety: SD0010

Sample Code:	B-CK	B-5	C-CK	C-5	K-CK	K-5	M-CK	M-5	Average Grandin	Average SD0010
Wht Protein(14%mb):	14.6	13.8	15.0	14.4	15.7	15.2	17.2	15.7	15.6	14.8
Wheat Ash(14%mb):	1.75	1.63	1.87	1.88	1.73	1.71	1.80	1.56	1.79	1.70
Test Weight(lb/bu):	59.8	60.5	57.4	58.6	59.2	58.2	54.0	57.8	57.6	58.8
1000-KWT(grams):	30.8	30.8	25.2	25.9	33.2	27.2	24.6	24.9	28.5	27.2
Large Kernels(%):	45	40	29	20	64	43	23	20	40	31
Small Kernels(%):	3	1	6	6	2	2	7	4	5	3
NIR Hardness:	78	78	81	68	86	80	97	93	85	80
Kernel Vit:	77.3	58.2	87.7	88.9	63.1	54.8	95.0	86.8	80.8	72.2
SKWCS HI:	73.9	68.2	77.7	77.7	70.1	64.3	76.2	78.3	74.5	72.1
Wht FN:	400	418	228	253	333	319	292	262	313	313
FI Protein(14%mb):	13.2	12.6	14.1	13.5	14.5	13.5	16.2	14.6	14.5	13.5
FI Ash(14%mb):	0.44	0.39	0.47	0.46	0.43	0.39	0.48	0.38	0.46	0.41
FI Ext(%):	71.5	73.2	69.3	70.6	74.3	75.0	66.4	69.8	70.4	72.2
# .46 Ash FI/cwt Wht:	73.1	76.4	64.1	73.8	74.3	77.7	64.6	73.9	69.0	75.4
Mill Value(\$):	1.79	2.00	1.59	1.78	1.93	2.06	1.47	1.91	1.70	1.94
Farino Abs(14%mb):	61.0	58.5	61.3	61.3	61.9	60.0	63.7	60.1	62.0	60.0
Farino Arrival Time(min):	2.2	1.8	2.6	3.5	3.0	2.6	4.6	3.3	3.1	2.8
Farino Peak Time(min):	4.0	3.2	4.7	6.0	6.4	5.5	8.2	8.2	5.8	5.7
Farino Stability(min):	10.3	11.2	8.9	9.0	8.9	9.1	15.4	16.9	10.9	11.6
Farino MTI(BU):	24	18	18	26	25	19	14	16	20	20
Bake Abs(14%mb):	62.0	60.9	62.7	63.0	63.2	61.6	65.7	62.7	63.4	62.1
Bake Abs Rating:	3.3	2.8	3.6	3.7	3.6	2.8	4.7	3.4	3.8	3.2
Bake Mix Time Actual:	14.1	15.5	12.9	11.6	9.3	8.4	13.8	14.9	12.5	12.6
Bake Mix Time Rating:	4.4	4.9	3.5	3.9	3.1	2.9	4.3	4.9	3.8	4.1
Mix Tolerance Rating:	4.3	4.6	4.1	3.7	2.8	3.2	4.9	4.9	4.0	4.1
Out of Mixer Rating:	4.4	3.1	3.8	4.3	3.6	4.1	3.9	2.9	3.9	3.6
Out of Mixer Describe:	2.1	1.9	2.0	1.9	1.9	2.3	2.0	1.8	2.0	2.0
At Make Up Rating:	3.8	3.3	4.5	4.1	3.5	4.1	3.3	2.8	3.8	3.6
At Make Up Describe:	2.3	2.1	2.0	2.1	1.8	2.2	1.8	1.8	2.0	2.0
Loaf Volume Rating:	3.3	3.7	4.0	4.0	3.5	3.5	4.3	3.5	3.8	3.7
Crumb Color:	3.8	4.3	3.2	3.9	3.3	4.1	3.4	4.3	3.4	4.2
Crumb Grain:	3.8	4.4	3.9	3.9	3.2	3.5	3.6	3.5	3.6	3.8
Crumb Texture:	4.3	4.3	4.5	4.2	3.6	4.1	4.4	4.1	4.2	4.2
Overall Rating:	3.8	3.8	3.7	3.8	3.4	3.6	4.3	3.6	3.8	3.7

Rating Scores : 0 3 6

Bake Absorption : Low ----- High

Bake Mix Time : Short ----- Long

Mixing Tolerance : Weak ----- Strong

Out Of Mixer : Weak or Bucky ----- Pliable

At Make Up : Weak or Bucky ----- Pliable

Loaf Volume : Low ----- High

Crumb Color : Yellow Grey Dull Creamy Bright White

Crumb Grain : Irregular, open, thick Open, thick Close, elongated, fine

Crumb Texture : Harsh Coarse Silky

Overall Rating : Poor ----- Excellent

Out of Mixer Describe:

1. Sticky-Weak or Tough-Bucky
2. Medium
3. Pliable

At Make Up Describe:

1. Sticky-Weak or Tough-Bucky
2. Medium
3. Pliable



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)  SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  SD0010	3. VARIETY NAME  Oxen
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)  SOUTH DAKOTA STATE UNIVERSITY AG HALL 129 BROOKINGS, SD 57007	5. TELEPHONE (include area code) 605-688-4149	6. FAX (include area code) 605-688-6065
7. PVPO NUMBER  9700150		
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain.  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
9. Is the applicant (individual or company) a U.S. national or U.S. based company? If no, give name of country _____  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
10. Is the applicant the original breeder? If no, please answer the following:  a. If original rights to variety were owned by individual(s): Is (are) the original breeder(s) a U.S. national(s)? If no, give name of country _____    b. If original rights to variety were owned by a company: Is the original breeder(s) U.S. based company? If no, give name of country _____    <input type="checkbox"/> YES <input type="checkbox"/> NO		
11. Additional explanation on ownership (If needed, use reverse for extra space):		

**PLEASE NOTE:**

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original breeder, both the original breeder and the applicant must meet one of the above criteria.

The original breeder may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

Public reporting burden for this collection of information is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter.

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